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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,673	04/24/2001	John S. Houston	POU920010030US1	6495

7590 10/29/2003

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EXAMINER

SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 10/29/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,673

Applicant(s)

HOUSTON, JOHN S.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 9-14, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al. (US Patent No. 4, 712, 092) in view of Barry et al. (US Patent No. 6, 014, 131) and further in view of Taylor (US Patent No. 3,765,014)

As to claim 1, Boldridge et al. teaches a keyboard having plurality of multifunction key position (See Fig. 8, item 32-33, in description See Col. 2, Lines 29-34, from Col. 7, Line 62 to Col. 8, Line 2 and Col. 6, Lines 40-42); a plurality of keys each key representing a character or function and containing a multibit binary code therein identifying the character or function, keys being responsive to user contact to the keycaps (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68); a circuit matrix disposed below keyboard, circuit matrix being capable detecting the binary code when one of the keys is contacted to produce an electrical signal representative of the binary code associated with the contacted key (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2); a standard interface connector to connect the keyboard to a computer (See Fig. 9B, item SERIAL DATA OUT, in description See from Col. 9, Line 60 to Col. 10, Line 2);

a controller for converting the output of the circuit matrix for the contacted key to one which is recognizable by the computer so that the output of the keyboard provides to the standard interface connector correctly, identifies the contacted keys character or function to the computer irrespectively of the position of the key on the keyboard (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2).

Boldridge et al. does not show each key containing an inscription on the keycap representing a character or function.

Barry et al. teaches relegendable LCD keyswitches (See Fig. 1, 2A, in description See Col. 6, Lines 44-46 and Col. 7, Lines 40-44). It would have been obvious to one of ordinary skill in the art at the time of invention to implement an inscription on the keycap as shown by Barry et al. in the Boldridge et al. apparatus in order to allow interactive, real-time on-line assistance to the user (See Col. 6, Lines 56-58 in the Barry et al. reference).

Boldridge et al. Barry et al. do not show keys being capable of being positioned in any of the key positions in the keyboard.

Taylor teaches independent and wholly removable key modules (See Figs.1-2, 5, items 5,16,22, in description See Col. 3, Lines 3-15). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the removable key module as shown by Taylor in the Boldridge et al. and Barry et al. apparatus in order to allow interactive, real-time on-line assistance to the user (See Col. 6, Lines 56-58 in the Barry et al. reference).

As to claim 10, Boldridge et al. teaches data entry device for disabled comprising: a keyboard having plurality of multifunction key position (See Fig. 8, item 32-33, in description

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See Col. 2, Lines 29-34, from Col. 7, Line 62 to Col. 8, Line 2 and Col. 6, Lines 40-42); a set of movable keys each key representing a character or function and containing a multibit binary code therein identifying the character or function, keys being responsive to user contact to the keycaps (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68); a circuit matrix disposed below and in a fixed relationship to keyboard, circuit matrix being having detection positions for each of the plurality of keys which detection positions are each capable of detecting the binary code of the keys when one of the keys is contacted to produce an electrical signal representative of the binary code associated with the contacted key (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2); a standard interface connector to connect the keyboard to a computer (See Fig. 9B, item SERIAL DATA OUT, in description See from Col. 9, Line 60 to Col. 10, Line 2); a controller for converting the output of the circuit matrix for the contacted key to one which is recognizable by the computer so that the output of the keyboard provides to the standard interface connector correctly, identifies the contacted keys character or function to the computer irrespectively of the position of the key on the keyboard (See Fig. 1,7, items 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2).

Boldridge et al. does not show each key containing an inscription on the keycap representing a character or function of the key in the set.

Barry et al. teaches releasable LCD keyswitches (See Fig. 1, 2A, in description See Col. 6, Lines 44-46 and Col. 7, Lines 40-44). It would have been obvious to one of ordinary skill in the art at the time of invention to implement an inscription on the keycap as shown by Barry et

al. in the Boldridge et al. apparatus in order to allow interactive, real-time on-line assistance to the user (See Col. 6, Lines 56-58 in the Barry et al. reference).

Boldridge et al. Barry et al. do not show keys being capable of being positioned in any of the key positions in the keyboard so that any key and its character identifying code can be placed in any key position, keys being responsive to user contact to the keycaps thereof, so that key can be moves to configure the keys on the keyboard in accordance with a user disability.

Taylor teaches independent and wholly removable key modules (See Figs.1-2, 5, items 5,16,22, in description See Col. 3, Lines 3-15). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the removable key module as shown by Taylor in the Boldridge et al. and Barry et al. apparatus in order to allow interactive, real-time on-line assistance to the user (See Col. 6, Lines 56-58 in the Barry et al. reference).

As to claims 2,11, Boldridge et al. teaches the controller with a look-up table responsive to the multi-bit output of the circuit matrix the multi-bit codes for each of the keys to provide a standard code signal recognizable by a any computer compatible with the interface connector (binary address of PROM translates to a desired ASCII code for the respective depressed key) (See Fig. 1,7, 9A, items 41, 30-33, in description See Col. 7, Lines 62-68 and Fig. 9, item 41, in description See from Col. 9, Line 60 to Col. 10, Line 2).

As to claims 3,12, Boldridge et al. teaches the keys have in the base of the key a plurality of locations each representing one digit in the multi-bit binary code to identify them distinctively from the other keys in accordance with multi-bit binary code (See Fig. 6-7, items 30-35, in description See Col. 7, Lines 62-66).

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Boldridge et al. does not teaches one or more pins each positioned one of the locations so that the keys all contain a different combination of location with posts and without posts. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the encoding in the in the Boldridge et al. apparatus to use one or more pins each positioned one of the locations so that the keys all contain a different combination of location with posts and without posts.

As to claims 4,13, Boldridge et al. teaches the keys have a circuit embedded therein storing the multi-bit binary code identifying each key distinctively from the other keys and have electrical contacts providing excitation to the circuit and connecting it to the matrix to provide a multi-bit code signal to the controller to **identify** the key (See Fig. 6-8, 9, items 30-35, 41, 62, in description See Col. 7, Lines 62-68).

As to claims 5,14, Boldridge et al. teaches the circuit matrix provides the bits of the multi-bit binary code to the controller in **parallel** (See Fig. 6-8, 9, items 30-35, 41, 62, in description See Col. 2, Lines 28-35 and Col. 7, Lines 62-68).

As to claims 9,17 Taylor teaches the keyboard has openings to accept the keys (See Fig. 1, item 14, in description see Col. 2, Lines 29-41), the keys are spring loaded with arms with feet that hold the keys in position and are flexible to enable removal of the key from the keyboard to permit selective placement of the keys in desired keyboard location (See Figs.1-2,5, items 18,5456,78, in description See Col. 2, Lines 29-41 and Col. 3, Lines 3-15), and Boldridge et al. teaches the multi-bit code stored therein to the circuit matrix (See Fig. 1, items 30-33, in description See Col. 7, Lines 62-68).

3. Claims 6,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al., Barry et al. and Taylor as aforementioned in claims 4,12 in view of Alexander (US Patent No. 3, 706, 905).

Boldridge et al. and Barry et al., Taylor do not teach the circuit matrix provides the bits of the multi-bit binary code to the controller serially.

Alexander teaches to transmit a serial binary code as each key is depressed (See fig. 1, items 12-13, in description see Col.2, Lines 3-5). It would have been obvious to one of ordinary skill in the art at the time of invention to use Alexander approach in the Boldridge et al. and Barry et al., Taylor apparatus.

4. Claims 8,16 rejected under 35 U.S.C. 103(a) as being unpatentable over Boldridge et al. and Barry et al., Taylor as aforementioned in claims 7, 11 in view of Cherry (US Patent No. 4,529,848).

Boldridge et al. and Barry et al., Taylor do not teach the circuit matrix contains a plurality of capacitive switches each switch responsive to one of the pins to generate a key make signal.

Cherry teaches the circuit matrix contains a plurality of capacitive switches each switch responsive to generate a key signal (See Fig. 3, items 37-39, in description See Col. 4, Lines 36-43). It would have been obvious to one of ordinary skill in the art at the time of invention to use Cherry approach in the Boldridge et al. and Barry et al., Taylor apparatus in order to provide a capacitive switch with an overtravel operation (See Col. 1, Lines 48-49 in the Cherry reference).

Response to Amendment

5. Applicant's arguments filed on 06-03-03 with respect to claims 1-6, 8-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Berruto et al. (US Patent No. 4,602,138) reference discloses keyboard with removable modular keys.

The Nelson. (US Patent No. 4,292,515) reference discloses peconfigurable photo-electric keyboard having removable keys.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

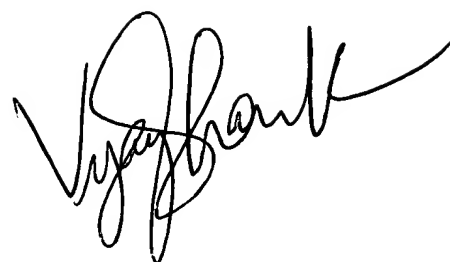
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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A handwritten signature in black ink, appearing to read 'Vijay Shankar', written in a cursive style.

**VIJAY SHANKAR
PRIMARY EXAMINER**